

RN02136

Serial number: 10/532,743

SUPPLEMENTAL AMENDMENT

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

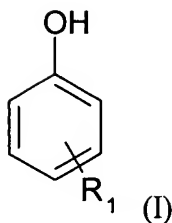
1-30 (Canceled)

31. (Currently amended) ~~The beads~~ Beads of a phenolic compound having a high hot solubility of at least 500 g/l at a reference temperature of 90°C, and a ~~large~~ difference of solubility which is at least doubled between its hot solubility in a first operational temperature in a fragmentation apparatus and cold solubility, ~~i.e. between a first operational temperature being the temperature in a fragmentation apparatus and in~~ a second operational temperature in the being the temperature of a cooling gas stream, said beads being both attrition resistant and porous.

32. (Currently amended) The beads according to claim 31, wherein the phenolic compound has a high hot solubility of at least 1000 g/l at a reference temperature of 90°C ~~and the difference of solubility being at least doubled between the two operational temperatures.~~

33. (Previously presented) The beads according to claim 32, wherein the difference of solubility is a multiple of at least 3 to 5 times between said two operational temperatures.

34. (Previously presented) The beads according to claim 31, wherein the phenolic compound has the following formula (I):



wherein:

R₁ represents a hydroxyl group, an amino group, an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms.

35. (Previously presented) The beads according to claim 34, wherein the phenolic compound is selected from hydroquinone, pyrocatechin, resorcin or m-aminophenol.

36. (Currently amended) The beads according to claim 31, having a particle size of between 100 μm and 3000 μm ~~in size, optionally between 500 μm and 1500 μm .~~

37. (Currently amended) The beads according to claim 31, having a size, expressed as the median diameter (d_{50}), of from 300 μm to 2000 μm , ~~optionally from 500 μm to 1500 μm .~~

38. (Currently amended) The beads according to claim 31, having an attrition resistance of between 90% and 100%, ~~optionally more than 98%.~~

39. (Currently amended) The beads according to claim 31, having an internal porosity, determined using a mercury porosimeter, of between 0.5 and 0.75, and having a bulk density (loose) of at least 0.3 ~~and optionally between 0.4 and 0.5.~~

40. (Previously presented) The beads according to claim 35, having a degree of compressibility of 5% to 10%.

41. (Currently amended) The beads according to claim 35, having an attrition resistance of ~~between 90% and 100%, optionally more than 98%.~~

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42. (Previously presented) The beads according to claim 35, wherein having an internal porosity, determined using a mercury porosimeter, of between 0.5 and 0.75 cm³/g.

43. (Cancelled)

44. (Previously presented) A process for preparing the beads defined in claim 31, comprising the steps of:

- a) preparing a hot concentrated aqueous solution of a phenolic compound, then,
- b) fragmenting the solution into droplets and cooling the droplets obtained in a stream of gas so that they solidify into beads, and, then,
- c) the beads obtained in step b) are recovered and dried.

45. (Currently amended) The process according to claim 44 45, wherein step b) consists of passing the phenolic acid solution through a nozzle to form droplets, solidifying the latter by allowing them to fall in a tower with a counter-current of a cold gas, in order to obtain the beads.

46. (Currently amended) The process according to claim 45 46, wherein step a) consists of preparing the aqueous solution of a phenolic compound at a concentration of at least 500 g/l, ~~optionally at least 1000 g/l.~~

47. (Currently amended) The process according to claim 46 47, wherein the aqueous solution of step a) is at a temperature of between 80°C and 98°C, ~~optionally between 85°C and 95°C.~~

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48. (Currently amended) The process according to claim ~~45~~ 46, wherein in step b), the nozzle is a single-hole nozzle or a multi-hole nozzle having between 1 and 3000 holes, ~~optionally between 1 and 100 holes.~~

49. (Currently amended) The process according to claim ~~45~~ 46, wherein in step b), the nozzle has perforations whose diameter is between 50 and 2000 μm , ~~optionall between 200 and 600 μm .~~

50. (Currently amended) The process according to claim ~~48~~ 49, wherein the nozzle is a static nozzle, preferably a nozzle which is subjected to a high frequency electrical vibration system, ~~optionally at 100 to 10000 hertz.~~

51. (Currently amended) The process according to claim ~~44~~ 45, wherein in step b), the gas is nitrogen or oxygen-depleted air whose temperature is between -30°C and 30°C , ~~optionally between -10°C and 10°C .~~

52. (Currently amended) The process according to claim ~~45~~ 46, wherein the droplet has a residence time for the nozzle outlet to its arrival of between 1 and 10 seconds, ~~optionally between 3 and 5 seconds.~~

53. (Currently amended) The process according to claim ~~44~~ 45, wherein in step c), the beads are being recovered using a fluidized bed technique.

54. (Currently amended) The process according to claim ~~44~~ 45, wherein in step b) the beads are formed in a prilling tower and the beads of phenolic compound at the bottom of the prilling tower is:

10% to 50% by weight of water; and

50% to 90% by weight of phenolic compound.

55. (Currently amended) The process according to claim 54 ~~55~~, wherein the phenolic compound is hydroquinone and the composition at the bottom of the prilling tower is:

25% to 50% by weight of water;

50% to 75% by weight of phenolic compound.

56. (Currently amended) The process according to claim 44 ~~45~~, wherein in step c), the beads are subjected to a stream of air the temperature of which is in the range 20°C to 90°C, optionally in the range 60°C to 90°C.

57. (Currently amended) The process according to claim 56 ~~57~~, wherein drying is carried out using a fluidized bed technique.

58. (Currently amended) The process according to claim 57 ~~58~~, wherein the beads of phenolic compound after drying is as follows:

0.1% to 1% by weight of water; and

99% to 99.9% by weight of phenolic compound.

59. (Currently amended) The process according to claim 58 ~~59~~, in which the composition of the beads of phenolic compound after drying is as follows:

0.1% to 0.6% by weight of water;

99.4% to 99.9% by weight of phenolic compound.

60. (New) The beads according to claim 31, wherein the phenolic compound has a high hot solubility of less than 15 000g/l.

61. (New) The beads according to claim 36, having a particle size of between 500 μm and 1500 μm .

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62. (New) The beads according to claim 37, having a size, expressed as the median diameter (d_{50}), of from 500 μm to 1500 μm .
63. (New) The beads according to claim 38, having an attrition resistance of more than 98%.
64. (New) The beads according to claim 39, having a bulk density (loose) of between 0.4 and 0.5.
65. (New) The beads according to claim 41, having an attrition resistance of between 90% and 100%.
66. (New) The process according to claim 46, wherein step a) consists of preparing the aqueous solution of a phenolic compound at a concentration of at least 1000 g/l.
67. (New) The process according to claim 47, wherein the aqueous solution of step a) is at a temperature of between 85°C and 95°C.
68. (New) The process according to claim 48, wherein in step b), the nozzle is a single-hole nozzle or a multi-hole nozzle having between 1 and 100 holes.
69. (New) The process according to claim 49, wherein in step b), the nozzle has perforations whose diameter is between 200 and 600 μm .
70. (New) The process according to claim 51, wherein in step b), the gas is nitrogen or oxygen-depleted air whose temperature is between -10°C and 10°C.
71. (New) The process according to claim 52, wherein the droplet has a residence time for the nozzle outlet to its arrival of between 3 and 5 seconds.
72. (New) The beads according to claim 60, wherein the phenolic compound is hydroquinone.